World's fastest car unveiled

3:26 AM*Joshua Dowling National Motoring Editor* WITH a top speed in excess of 420km/h, no other car on sale today comes close. But don't expect to see one on the road soon. Price: $3.8 million plus taxes.

Futuristic Holden car wows Europe

0:00 AM*Joshua Dowling National Motoring Editor* HOLDEN could soon have a budget-priced sports car, dubbed the "mini Monaro", in its showrooms for the first time and it has a strong Australian link.

PayPal defends blockers fight

0:00 AM*DAVID SWAN* The newly independent company is tackling the objective of opening up payments in developing economies.

Fibre-to-the-node is no NBN fun

0:00 AM*Supratim Adhikari* For all of its promise of early delivery and lower cost, the fibre-to-the-node deployment is no fun for NBN Co.

What to expect from Netflix rival

23:32 PM*Matthew Dunn* THE Australian launch of YouTube Red is on track for its rollout later this year and the company is confident it will be a success. Here's what to expect.

How NBN became PM's 'massive mess'

21:09 PM*Benedict Brook* IT WAS meant to be all so much easier than this. It was meant to be cheaper and we'd have it faster. So how did we get to this mess?

BHP's 'catastrophic failure'

20:51 PM*Debra Killalea and wires* "I ENDED up with nothing but the clothes I had on. I lost everything."
Survivors reveal the truth of the mudslide that killed 19.
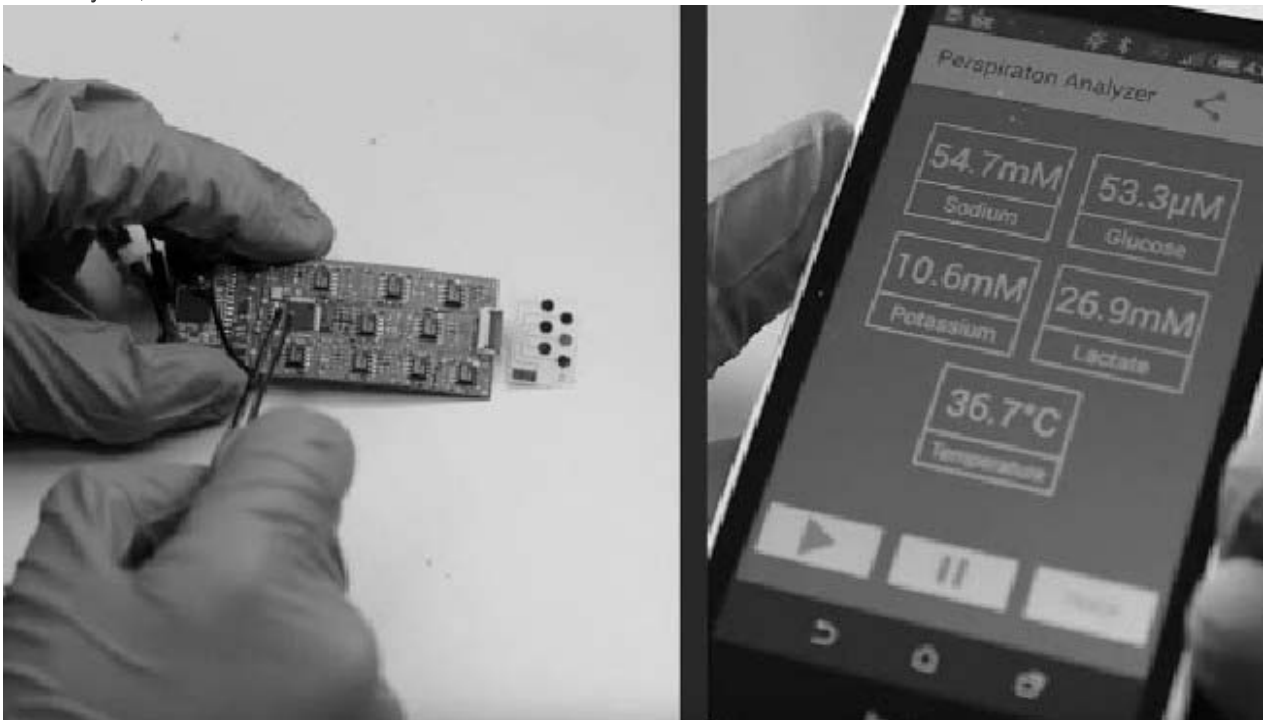
Get your umbrellas ready

19:15 PM*Olivia Lambert* IT has been a ridiculously hot summer but we can expect some cooler weather and
lots of rain coming up.

Latest In technology

How wearable technology and smartwatches will change the workplace

February 24, 20168:45am

The sensors attached the new device work to analyse chemicals in sweat. Picture: University of Berkeley, California/YouTube

Sophie AubreyNews Corp Australia Network
**A STARTLING shift in workplace dynamics between bosses and their employees is brewing — and it's
coming in the form of technology barely the width of your thumb.**

Every generation, digital pioneers introduce a new program or gadget that will forever change the way society
operates. And the next tech revolution is already here. In part fanned by the buzz of the 2014 Apple Watch
release, devices of all sorts are now strapped on the wrists of millions of individuals striving for extra
functionality and healthier bodies.

Only now, businesses are looking to seize on smartwatch technology for their capacity to boost the productivity, safety and wellbeing of their workforce. The result? Your employer could well know a whole lot more about you.

Smartwatches are only set to get cleverer. Already commercially available devices by the likes of Garmin and Fitbit can monitor vital signs such as heartrate, sleep patterns and activity levels — factors that can indicate when somebody is unhealthy, under stress or fatigued.

The next generation will leap even further, driven by scientific discovery, to a molecular level. Engineers at University of California, Berkeley, have developed a complex wrist device with hypersensitive sensors that analyse the chemicals in sweat.

The breakthrough technology paves the way for real-time monitoring with remarkable precision of a wearer's health, as well as detecting cortisone levels, illness and drug use, by evaluating the physiologically rich information in sweat.

Sweat sensor

A sweat sensor to monitor your health

Market experts say the wearable electronics industry is on track to boom alongside growing demand over the next few years. Globally, the market for the technology is forecast to balloon from US$20 billion to US$70 billion in the decade to 2025.

Personalised medicine, healthcare and wellness will likely dominate the technology's use, but its potential in society are far, far wider — bringing with it a long slew of concerns over employee privacy.

PricewaterhouseCoopers partner and digital services leader John Riccio said it was early days yet, with commercially available wearables still in a relatively immature stage and people still working through how best to apply them.

But by increasingly rooting the technology in a modern environment peppered with sensors, beacons and monitors, it can open up a whole new world of opportunity — whether it's keeping tabs on an elderly medical patient for ultra-individualised healthcare or ensuring an oil rig worker stays out of high-risk areas.

"It will evolve considerably as the ecosystem around these devices becomes a lot more mature and pervasive," Mr Riccio said.

This the beginning of a great new realm in bio-sensing. Not only for personal use but for astronauts, for people who need to be monitored, for this or that condition — Dr George Brooks, Exercise Physiology, University of California, Berkeley

He said that from an employee perspective, the wristbands would enhance their health and safety by helping to identify and prevent potential problems.

For employers, the main drawcard of the hands-free devices is productivity. He provided the example of a warehouse or retail worker being able to walk down aisles and automatically pick up product data and stock levels instead of having to scan each item. And nurses and doctors would be able to access detailed health information on their patients remotely or before an appointment even begins, allowing visits to be scheduled based on need as indicated by data.

Mr Riccio said he expected to see a major uplift in the next 18 months and it would become commonplace as more people chose to skip the routine phone upgrade to instead opt for a smartwatch that was much less obtrusive but provided functionality.

"It is going to become a normal part of being and we're starting to see signs of that today. More and more people are wearing smartwatches," he said.

"It's like an extension of smartphones and it lifts the level of information available."

For office workers, Mr Riccio said the benefit was less obvious being more about preserving wellbeing in high-stress jobs.

Doctors and nurses will be better able provide more personalised medicine for their patients. Picture: Thinkstock *Source:* Supplied

He said there was rising investment in smartwatch pilots in customer-based sectors such as health, retail and travel.

"It's about increasing the level of service," Mr Riccio explained.

"There's a huge, huge dividend because of the productivity gain that comes out of it.

"Once that is evident, it becomes a no-brainer for businesses."

COULD A WORKPLACE SMARTWATCH SAVE LIVES?

One question that emerges is whether there is a stronger 'greater good' argument for transport workers — pilots, truckies and drivers of taxis, trains, trams and buses — to take on the technology to track their physical and mental health because they have the public's safety in their hands.

Mr Riccio said it was entirely possible that wearable technology could help prevent fatal accidents, drawing on a colleague's example of the Germanwings plane disaster that killed 150 people after the co-pilot Andreas Lubitz deliberately careered the plane into a mountainside.

In the case of Lubitz, who struggled with depression and insomnia and used prescription drugs to treat his mental illness, it is possible these factors could be picked up by the types of advanced wearable devices in development. Had Lubitz's employer known his depression had returned after a previous battle in 2008, the tragedy may have been prevented — he would not have been able to fly.

Investigators work in the scattered debris on the crash site of the Germanwings Airbus A320 in the French Alps in March last year. Picture: AFP/Anne-Christine Poujoulat*Source:*AFP

Market Clarity futurist Shara Evans also believed it was possible that technology could prevent a tragedy like the Germanwings crash but perhaps not using a smartwatch alone, believing it would take a mix of employee counselling services and possibly even facial recognition software.

However deadly road accidents are far more common and trucks continue to feature heavily in the nation's fatal crashes.

Data from the Department of Infrastructure and Regional Development Australian Road Deaths Database shows in the 12 months to the end of September 2015, 197 people died from 171 fatal crashes involving heavy trucks or buses.

Mr Riccio said it would be a "very positive move" for both the public and the worker if a transport employer implemented wearable technology to further aid in identifying possible issues before they escalated.

A fatal crash on the near Hamilton, VIC, between a truck and a four-wheel drive. Picture: Robin Sharrock*Source:*Supplied

"It's like a human early warning system, unlike a warning system around maintenance, for potential catastrophes," Riccio said, before stressing it would then be essential to ensure there was the capacity to act on a problem.

"If you identify a potential issue, firstly how do you validate that is going to be an issue and more importantly, how do you act? ... If you don't act on it, why bother listen?"

Ms Evans tended to agree there was a stronger business case for the transport industry and said workers were more likely to accept the devices and share data with their employer for the sake of safety.

Transport Workers' Union of Australia assistant national secretary Michael Caine said that "in a balanced way" he felt there could be a stronger argument for transport employees to be early-adopters of wearable technology and said it could play a vital role in improving a truck driver's wellbeing.

But he stressed that privacy issues would need to be ironed out first, as well ensuring data identifying dangerous levels of stress, fatigue or drug use wasn't used to penalise workers.

He used the example of artificial stimulants that truck drivers sometimes resort to meet freight deadlines. If an employer picked up the drug use in a wearer's body fluid, he said there was a risk they were "unfairly targeted" to avoid getting to the crux of why stimulants might be necessary.

"That can lead to a very quick downward spiral of standards," Mr Kaine said.

A car and truck collision on Brisbane's Pacific Motorway resulted in a double fatality. Picture: Tim Marsden*Source:*News Corp Australia

He said his chief reason for welcoming wearable technology was to help alleviate the systemic pressures that worked its way down the business chain and hit drivers hardest.

"As long as ... (it is) in the context of a mix of strategies which must include holding those at the very top of the chain accountable, then as a general proposition this is important technology to explore," he said.

Mr Kaine believed wrist devices would reveal fatigue and stress were more endemic than thought.

"Truck drivers are prone to fatigue, stress and lifestyle problems," he said.

"Each time you get more granular in understanding the pressures on transport workers, the extent is always surprising and distressing."

However he said there were "serious reservations" from drivers around protecting their workplace privacy.

"It is really getting to a very personal level," he said.

"Workers have expressed concerns ... but they will be somewhat allayed if they understand the objective is to assist them and help employers lift pressures."

ARE OUR CIVIL LIBERTIES AT STAKE?

Privacy advocates warn that if anything goes wrong in the domains of employee data privacy, security or accuracy, then you've got yourself a recipe for disaster.

Mr Riccio acknowledged the public was likely to voice reservations around privacy, but said people "would become comfortable with it just like they have done in the past".

"With every new technology the whole issue of privacy comes up. It's more set in culture rather than a new concern," he said.

Mr Riccio believed many employees would be open to employers taking on a bigger duty of care in relation to their health, while other workers would fear repercussions if they were found to be overly stressed.

He said "trust was the biggest factor in the digital world" and employers needed to be clear they would use the data for the right purposes rather than collecting it under the guise of health and wellbeing but then using it to assess an individual's performance.

Ms Evans similarly said that once an employer had consent from an employee to implement wearable technology, the core concern was how data was used.
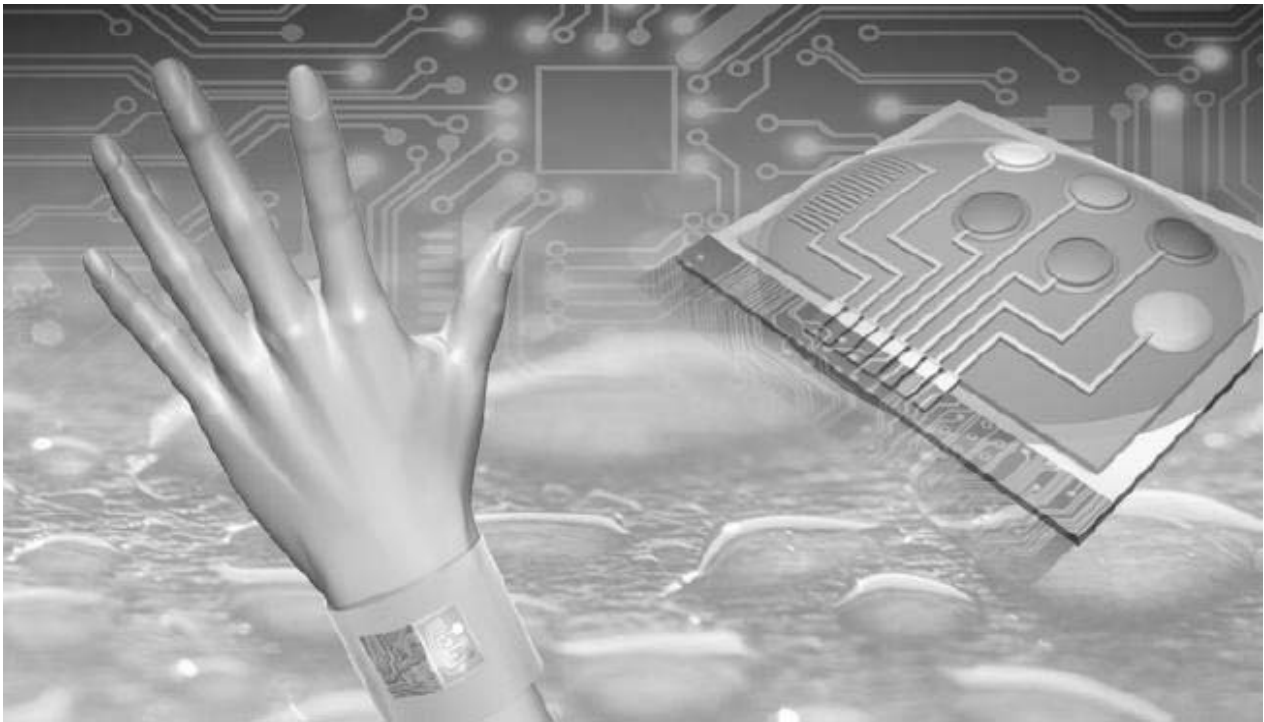
A model of the sweat-sensing wristband. Picture: Der-Hsien Lien and Hiroki Ota/Supplied

"Will it be used to alert an employee or supervisor of situations that might cause imminent danger or more nefariously to decide you don't like the health signals coming from a particular person, run some predictive analytics to show they will take more sick leave, and form an idea about who the better workers are?"

University of Wollongong technology researcher Katina Michael said it had to be the choice of individuals whether or not to adopt new technology.

Dr Michael, who is also a board member of the Australian Privacy Foundation, also feared we were entering dicey territory if we began predicting a person's behaviour based on data.

"Just because someone has the characteristics or profile patterns that fit a particular group, it doesn't mean 'x' will happen," she said.

"A person might be functioning fine during the work day but an employer might say we can tell from physiological data that they're suffering from depression, so we should cancel their ability drive a truck."

She also feared bosses would easily be able "wash their hands of problems" and shift liability to their employees so as to not damage their company brand rather than tackling the underlying causes of issues like drug addiction and mental illness.

Civil Liberites Australia vice-president Tim Vines said transparency was his most central concern when implementing wearable devices.

More and more tech companies are producing smartwatches to meet consumer demand, like LG's Watch Urbane. Picture: Supplied*Source:*Supplied

"Employers need to provide solid justifications for why (they are necessary)," Mr Vines said.

"It will depend on bosses having conversations with employees and … being upfront about what type of data they are collecting, how it's going to be used, stored and for how long."

He stressed that without clear rules, it risked giving an employer too much power over their workers' lifestyle, health and even substance use.

"We don't want our bosses to become the police force of our private lives," he said.

Ms Evans said hacking by cyber criminals was another reasonable concern.

She warned that personal data gathered by smartwatches could be used for "all kinds of malicious mechanisms like identity theft and blackmail to truly harm a person."

Ms Evans said it was also key to consider the accuracy of the data being transmitted. An example of this is playing out in the US where Fitbit buyers have filed a class-action lawsuit accusing its heartrate monitor of being shonky.

If a sensor on a device was flawed, then so were conclusions drawn from it, Ms Evans said, stressing it would be wrong to deem an employee unfit for duty unless there was a way to ensure data accuracy.

The potential of wearable devices goes well beyond what the Fitbit, as worn here by Luke Hines, can do. Picture: Supplied*Source:*Supplied

But all of these public concerns will do little to block wearable technology's ascent. Despite the reservations, there is collective acknowledgment that wearable technology isn't going anywhere. Rather, it is doing just the opposite — and growing in even newer ways such as 'smartclothing' fitted with biosensors, technology that Ms Evans would be welcomed in construction and mining.

And she said CEOs she is in discussions with are eager to begin investing in reliable wrist technology.

As University of Cincinnati professor Jason Heikenfeld wrote in journal *Nature*, the latest breakthrough sweat-sensing devices developed at University of California, Berkeley, reveal the scale of opportunities with researchers set to "undoubtedly come up with innovations to transform technology that is currently merely appealing into something that, one day, you could not imagine living without."

It may be only a matter of time before your boss rolls out a smartwatch trial.

Twitter: @sopphie

sophie.aubrey@news.com.au